



US005779130A

United States Patent [19]

[11] Patent Number: **5,779,130**

Alesi et al.

[45] Date of Patent: **Jul. 14, 1998**

[54] **SELF-CONTAINED POWERED SURGICAL APPARATUS**

4,771,774 9/1988 Simpson et al. .
4,784,137 11/1988 Kulik et al. .

[75] Inventors: **Daniel E. Alesi**, Sherman; **Robert J. Geiste**, Milford; **Dominick L. Mastri**, Bridgeport, all of Conn.; **Wayne P. Young**, Brewster, N.Y.; **Kenneth E. Toso**, Wilton, Conn.

(List continued on next page.)

[73] Assignee: **United States Surgical Corporation**, Norwalk, Conn.

FOREIGN PATENT DOCUMENTS

[21] Appl. No.: **319,907**

0156774 10/1985 European Pat. Off. .
0216532 4/1987 European Pat. Off. .
0536903 4/1993 European Pat. Off. .
0539762 5/1993 European Pat. Off. .
0552050 7/1993 European Pat. Off. .
0593920 4/1994 European Pat. Off. .
0598579 5/1994 European Pat. Off. .
0621006 10/1994 European Pat. Off. .
0634144 1/1995 European Pat. Off. .
2660851 10/1991 France .
2903159 7/1980 Germany .
3114135 10/1982 Germany .
4213426 10/1992 Germany .
659146 4/1979 U.S.S.R. .
9308754 5/1993 WIPO .
9314706 8/1993 WIPO .

[22] Filed: **Oct. 7, 1994**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 287,455, Aug. 5, 1994, abandoned.

[51] Int. Cl.⁶ **A61B 17/068**

[52] U.S. Cl. **227/176.1; 227/178.1; 227/180.1; 227/19**

[58] Field of Search **227/175.1, 176.1, 227/178.1, 179.1, 180.1, 19**

Primary Examiner—Scott A. Smith

[57] ABSTRACT

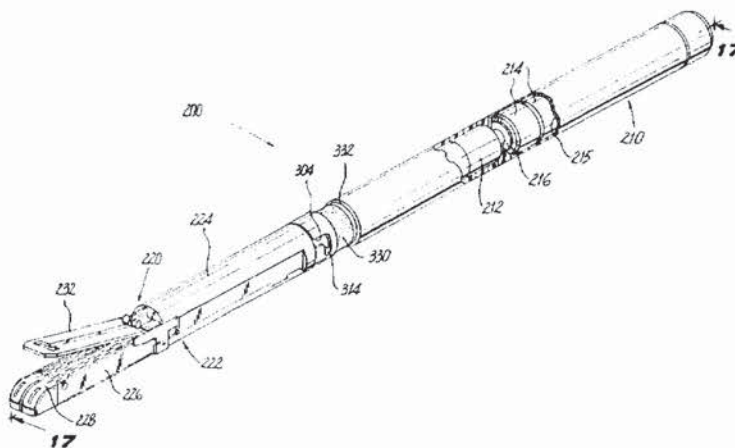
A self-contained powered surgical stapling device is provided which includes an elongate body and a disposable cartridge assembly detachably supported in a distal end portion of the body. The cartridge assembly includes a frame configured to engage the distal end portion of the body, a housing supported within the frame and containing a plurality of surgical fasteners, an anvil mounted for movement with respect to the housing, an actuation assembly configured to translate relative to the housing and the anvil to progressively move the anvil from an open position to a closed position and to sequentially eject the surgical fasteners from the housing to be formed against the anvil, and an axial drive screw mounted in the frame and threadably associated with the actuation assembly for effectuating the longitudinal translation thereof. A motor assembly having an axial drive shaft is disposed within the elongate body, and a coupling is provided for detachably connecting the axial drive shaft and the axial drive screw. A power source is disposed within the elongate body for energizing the motor assembly.

[56] References Cited

U.S. PATENT DOCUMENTS

1,881,250 10/1932 Tomlinson .
3,618,842 11/1971 Bryan .
3,815,476 6/1974 Green et al. .
3,952,748 4/1976 Kaliber et al. .
4,071,029 1/1978 Richmond et al. .
4,289,131 9/1981 Mueller .
4,334,539 6/1982 Childs et al. .
4,484,503 11/1984 Sitte et al. .
4,489,724 12/1984 Arnegger .
4,494,057 1/1985 Hotta .
4,520,817 6/1985 Green .
4,605,001 8/1986 Rothfuss et al. .
4,610,383 9/1986 Rothfuss et al. .
4,644,952 2/1987 Paupa et al. .
4,650,460 3/1987 Roizenblatt .
4,655,673 4/1987 Hawkes .
4,705,038 11/1987 Sjostrom et al. .
4,733,118 3/1988 Mihalko .

20 Claims, 16 Drawing Sheets



U.S. PATENT DOCUMENTS

4,867,158	9/1989	Sugg .	5,201,750	4/1993	Hocherl et al. .
4,887,599	12/1989	Muller .	5,207,697	5/1993	Carusillo et al. .
4,936,845	6/1990	Stevens .	5,221,279	6/1993	Cook et al. .
4,995,877	2/1991	Ams et al. .	5,237,884	8/1993	Seto .
5,040,715	8/1991	Green et al. .	5,249,583	10/1993	Mallaby .
5,059,203	10/1991	Husted .	5,258,007	11/1993	Spetzler et al. .
5,071,430	12/1991	de Salis et al. .	5,261,877	11/1993	Fine et al. .
5,133,359	7/1992	Kedem .	5,268,622	12/1993	Philipp .
5,133,713	7/1992	Huang et al. .	5,289,963	3/1994	McGarry et al. .
5,133,729	7/1992	Sjostrom .	5,312,023	5/1994	Green et al. .
5,170,925	12/1992	Madden et al. .	5,318,221	6/1994	Green et al. .
5,192,292	3/1993	Cezana et al. .	5,326,013	7/1994	Green et al. .
			5,467,911	11/1995	Tsuruta et al. .

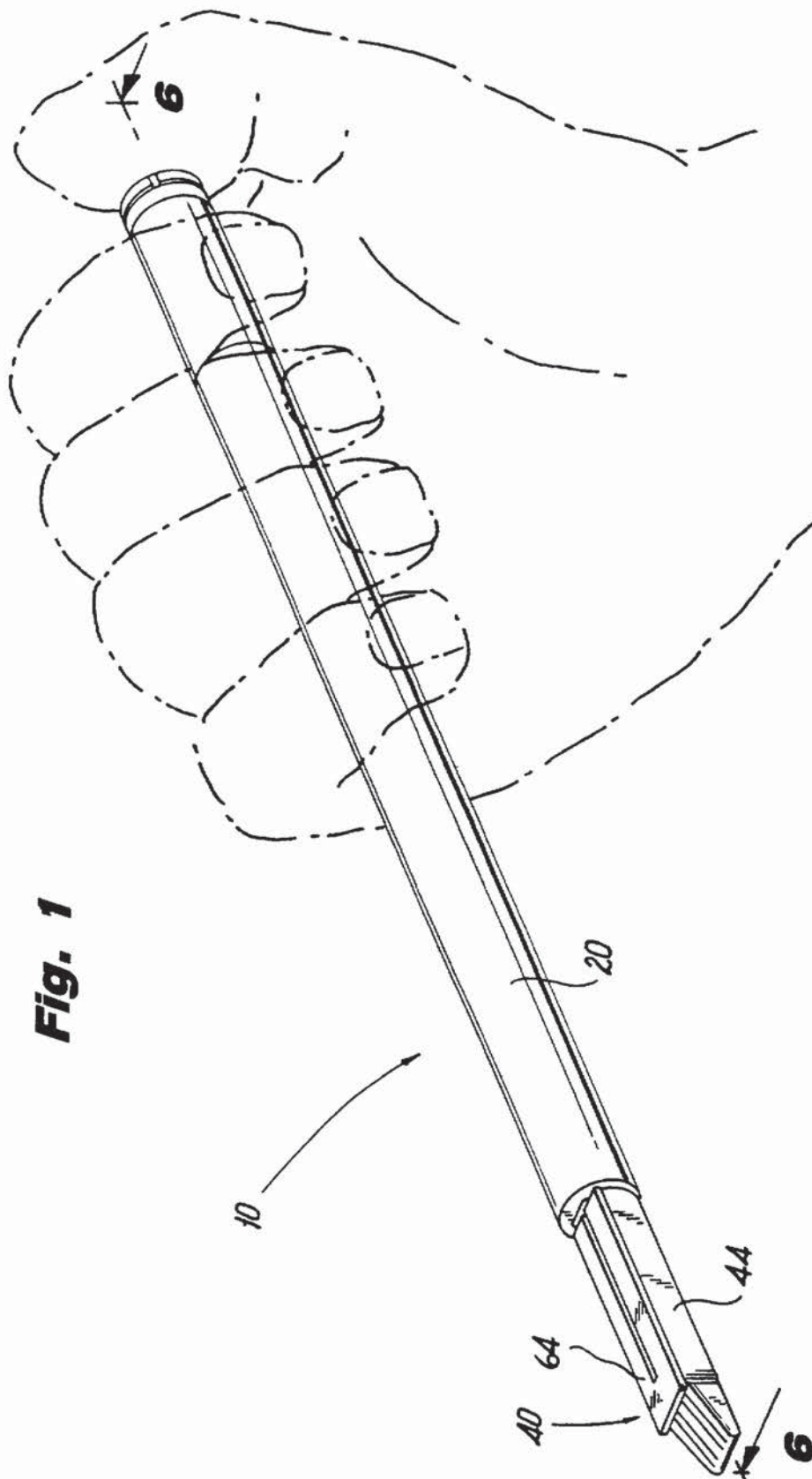


Fig. 2A

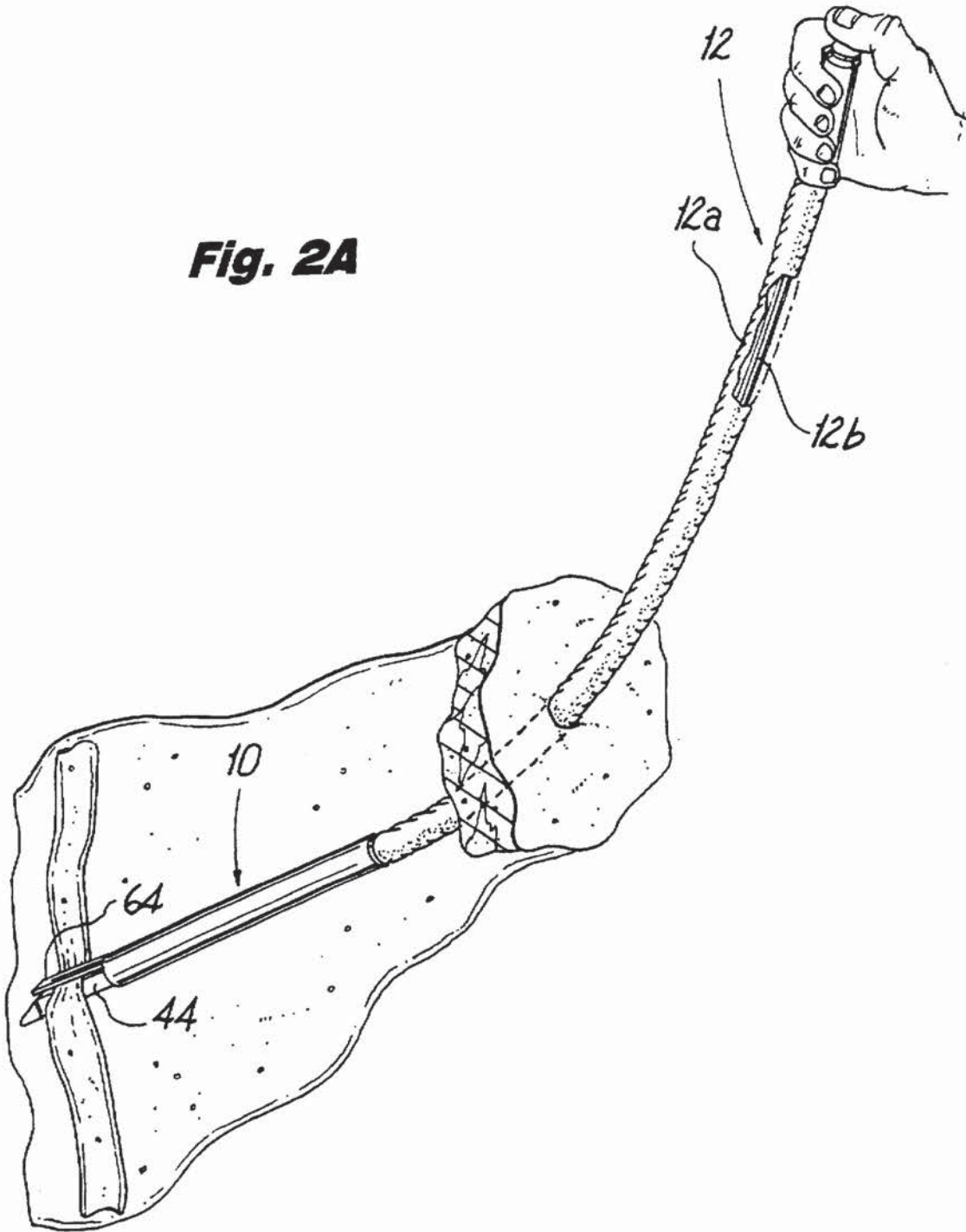


Fig. 2B

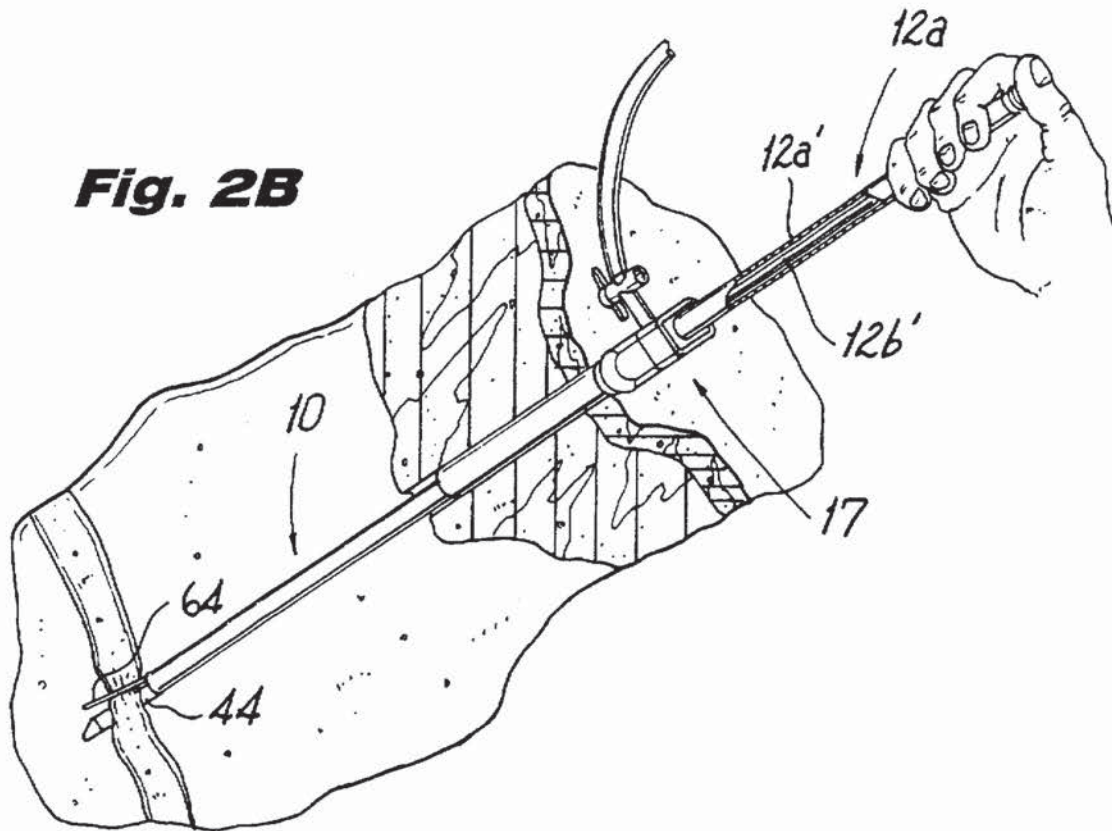
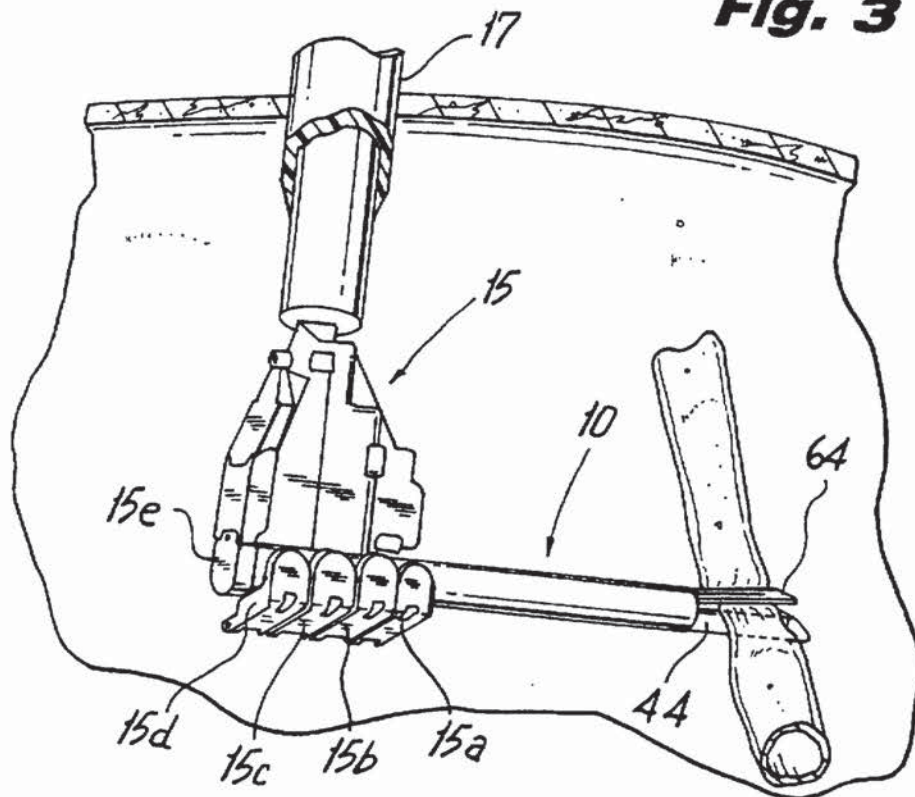


Fig. 3



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.